

USER'S GUIDE

MegaRAID[®] SAS Device Driver Installation

November 2008



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This document describes revision/release 1.2 of LSI Corporation's MegaRAID Device Driver and will remain the official reference source for all revisions/releases of this product until rescinded by an update.

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Preface

This manual is the primary reference for the operating system drivers provided with the LSI® MegaRAID® devices. It describes the drivers for all supported operating systems and explains how to install them.

Audience

This document is intended for people installing an operating system driver for a MegaRAID SAS RAID controller.

Organization

This document has the following chapters:

- [Chapter 1, Overview](#), describes the MegaRAID SAS RAID controller and lists the operating systems for which drivers are provided.
- [Chapter 2, Windows Driver Installation](#), provides installation instructions for Windows operating systems.
- [Chapter 3, Novell NetWare Driver Installation](#), provides installation instructions for Novell NetWare.
- [Chapter 4, Red Hat Linux 3.0, 4.0, and 5.0 Driver Installation](#), provides installation instructions for Red Hat Linux.
- [Chapter 5, SUSE Linux Enterprise Server \(SLES\) 9.0 and 10.0 Driver Installation](#), provides installation instructions for SLES Linux.
- [Chapter 6, SCO OpenServer 6 and SCO UnixWare 7 Driver Installation](#), provides installation instructions for SCO Openserver and SCO UnixWare.
- [Chapter 7, FreeBSD Driver Installation](#), provides installation instructions for FreeBSD.

- Chapter 8, **Solaris 10 x86 and Solaris Express x86 Driver Installation**, provides installation instructions for Solaris.

MegaRAID System Installation Sequences and Document Organization

The following table outlines the installation, configuration, and management sequences for a MegaRAID SAS RAID system. Each sequence consists of a series of steps and operations that the reference manual explains. LSI recommends performing the sequences in the order listed when you install and configure your SAS RAID system.

Sequence	Task	Reference Manual
1	Understand RAID system theory and operation.	<i>MegaRAID SAS Software User's Guide</i>
2	Install the MegaRAID SAS RAID controller and the related hardware.	<i>MegaRAID SAS RAID Controllers User's Guide</i> <i>MegaRAID 1078-based SAS RAID Controllers User's Guide</i>
3	Configure the physical arrays and logical devices using either the MegaRAID Configuration Utility (CU) or the WebBIOS CU.	<i>MegaRAID SAS Software User's Guide</i>
4	Install the MegaRAID SAS device drivers.	<i>MegaRAID SAS Device Driver Installation User's Guide</i>
5	Use the MegaRAID Storage Manager tool to configure, monitor, and maintain storage configurations on LSI SAS controllers. The MegaRAID Storage Manager graphical user interface (GUI) makes it easy for you to create and manage storage configurations. This tool runs under an operating system and can manage RAID arrays while the system is operating.	<i>MegaRAID SAS Software User's Guide</i>

Related Publications

MegaRAID SAS RAID Controllers User's Guide,
Document No. 80-00130-01 Rev. B

This document explains how to install your MegaRAID 1068-based SAS RAID controller in a host system. In addition, it provides the electrical and

physical specifications, jumper definitions, and connector locations for the 1068-based SAS RAID controllers.

MegaRAID 1078-based SAS RAID Controllers User's Guide,
Document No. 80-00157-01 Rev. B

This document explains how to install your MegaRAID 1078-based SAS RAID controller in a host system. In addition, it provides the electrical and physical specifications, jumper definitions, and connector locations for the 1078-based SAS RAID controllers.

MegaRAID SAS Software User's Guide, Document No. 80-00156-01 Rev. E

This document explains how to use the MegaRAID Storage Manager, WebBIOS, and Command Line Interface (CLI) utilities to configure, monitor, and maintain MegaRAID SAS RAID controllers and the storage-related devices connected to them.

Conventions Used in This Manual

Notation	Example	Meaning and Use
→	Start →Programs.	Used to indicate a series of selections in a GUI.
all caps	ALT+CTRL+DEL	Key presses display in all capital letters.
Courier typeface	.rwk file	Names of commands, directories, filenames, and on-screen text are shown in Courier typeface.
bold typeface	fd1sp	In a command line, keywords are shown in bold, non-italic typeface. Enter them exactly as shown.
italics	<i>module</i>	In command lines and names, italics indicate user variables. Italicized text must be replaced with appropriate user-specified items. Enter items of the type called for, using lower case.
initial capital letters	Undo Edit Apply	Names of menu commands, options, check buttons, text buttons, options buttons, text boxes, list boxes, etc., are shown in text with initial capital lettering to avoid misreading. These elements may appear on your screen in all lower case.
ellipses	option...	In command formats, elements preceding ellipses may be repeated any number of times. Do not enter the ellipses. In menu items, if an ellipsis appears in an item, clicking that item brings up a dialog box.

Revision History

Document Number	Date	Remarks
80-00163-01 Rev. B	November 2008	Added installation instructions for the FreeBSD and Solaris 10 operating systems.
80-00163-01 Rev. A	August 2007	Updated the installation procedures for the Windows, Red Hat Linux, and SuSE Linux operating systems to include the latest versions. Added a chapter for the SCO operating system.
DB15-000358-00	February 2006	Initial release of document.

Technical Support

LSI provides technical support for products purchased directly from LSI or from an LSI-authorized reseller only. For assistance in installing, configuring, or running your MegaRAID SAS RAID controller, contact LSI Technical Support.

Phone Support:

1-800-633-4545 (North America)

Web Site:

<http://www.lsi.com/support>

If the MegaRAID SAS RAID controller was installed as part of a system manufactured by a company other than LSI, or if you purchased an LSI product from an unauthorized reseller, call the technical support department of the computer manufacturer or the unauthorized reseller. LSI does not provide direct technical support in these cases.

Contents

Chapter 1

Overview

1.1	Driver Description	1-1
1.1.1	Driver Functions	1-2
1.1.2	Driver Updates	1-2
1.2	Driver Names	1-3

Chapter 2

Windows Driver Installation

2.1	Installing the Windows System Driver in a New Windows System	2-2
2.2	Installing or Updating the MegaRAID Driver in an Existing Windows System	2-3

Chapter 3

Novell NetWare Driver Installation

3.1	Novell NetWare Driver Files	3-1
3.2	Installing the NetWare Driver in a New NetWare System	3-2
3.3	Installing or Updating the NetWare Driver in an Existing NetWare System	3-3

Chapter 4

Red Hat Linux 3.0, 4.0, and 5.0 Driver Installation

4.1	Installing the Driver in a New Red Hat Linux System	4-1
4.1.1	Installing from CD	4-1
4.1.2	Installing from a Driver Update Diskette	4-1
4.2	Adding the Red Hat Linux 4.0 or 5.0 Driver to an Existing Installation	4-2
4.3	Updating the Red Hat Linux System Driver	4-3

Chapter 5

SUSE Linux Enterprise Server (SLES) 9.0 and 10.0 Driver Installation

- | | | |
|-------|---|-----|
| 5.1 | Installing the Driver in a New SuSE SLES Linux System | 5-1 |
| 5.1.1 | Installing from CD | 5-1 |
| 5.1.2 | Installing from a Driver Update Diskette | 5-2 |
| 5.2 | Updating the SuSE SLES 9.0 or 10.0 Driver | 5-2 |
-

Chapter 6

SCO OpenServer 6 and SCO UnixWare 7 Driver Installation

- | | | |
|-----|--|-----|
| 6.1 | Installing the Driver in a New SCO OpenServer 6 or SCO UnixWare 7 System | 6-1 |
| 6.2 | Upgrading the Driver on an Existing OpenServer 6 or UnixWare 7 System | 6-2 |
-

Chapter 7

FreeBSD Driver Installation

- | | | |
|-----|--|-----|
| 7.1 | Upgrading the Driver on an Existing FreeBSD System | 7-1 |
|-----|--|-----|
-

Chapter 8

Solaris 10 x86 and Solaris Express x86 Driver Installation

- | | | |
|-------|---|-----|
| 8.1 | Installing the Driver in a New Solaris 10 x86 or Solaris Express x86 System | 8-1 |
| 8.1.1 | Installing the Driver Update (Install-Time-Update) from CD or Diskette | 8-1 |
| 8.1.2 | Installing the Driver Update (Install-Time-Update) from Floppy Diskette | 8-2 |
| 8.2 | Updating the Driver on Solaris 10 x86 or Solaris Express x86 System | 8-3 |
-

Index

Customer Feedback

Tables

1.1	MegaRAID Device Driver Files	1-3
3.1	MegaRAID Novell NetWare Driver Files	3-1

Chapter 1

Overview

This chapter provides an overview of the drivers for the MegaRAID® SAS RAID controllers. It consists of the following sections:

- [Section 1.1, “Driver Description”](#)
- [Section 1.2, “Driver Names”](#)

Subsequent chapters in this manual provide detailed installation instructions for the operating systems. Use the latest updates provided by the operating system manufacturer and review the `readme` file that accompanies the driver for any updated information.

1.1 Driver Description

You can install the MegaRAID SAS controller in any IBM AT-compatible computer that has a PCI Express local bus. The RAID controller can run under various operating systems.

To use the controller with these operating systems, you must install software drivers. LSI® provides software drivers for the following operating systems:

- Microsoft® Windows® 2000, Windows XP, Windows XP x64, Windows Server 2003 (x86), Windows Server 2003 (x64), and Windows Vista
- Novell® NetWare®
- Red Hat® Linux™ versions 3.0, 4.0, and 5.0
- SuSE SLES versions 9 and 10
- SCO™ OpenServer® and SCO UnixWare™
- FreeBSD®

- Solaris™

1.1.1 Driver Functions

MegaRAID provides drivers for the MegaRAID SAS RAID Storage Adapters, which bring 3.0 Gbit/s Serial Attached SCSI and 3.0 Gbit/s SATA II performance to host adapter, workstation, and server designs. The controllers support internal and external storage devices, which allows you to use a system that supports enterprise-class SAS and desktop-class SATA II drives.

The SAS controllers integrate eight high-performance SAS/SATA II PHYs and a PCI Express bus master DMA core. Each of the eight PHYs is capable of 3.0 Gbit/s SAS link rates, and 3.0 Gbit/s SATA II link rates.

The SAS RAID controllers support the SAS protocol as described in the *Serial Attached SCSI Standard, version 1.1*. The controllers also support the Serial ATA II (SATA II) protocol defined by the *Serial ATA specification, version 1.0a*. SATA II is an extension to SATA 1.0a.

The drivers do the following:

- Support the PCI Express protocol
- Support multiple RAID Storage Adapters (RSAs)
- Provide the ability to see newly configured logical drives in the configuration software utility without rebooting the system
- Allow random deletion of logical drives created using the MegaRAID Storage Manager (see the *MegaRAID SAS Software User's Guide* for more information)
- Support use of the remaining array capacity by MegaRAID Storage Manager

1.1.2 Driver Updates

Because LSI regularly updates device drivers, there might be a feature added to your driver that is not included in the most recent manual publication. If you have a question about a feature, consult the `readme` file that accompanies the driver, or contact your MegaRAID support representative. Be sure to use the latest Service Packs provided by the operating system manufacturer.

You can download the latest drivers and software on the LSI website at <http://lsi.com/cm/DownloadSearch.do>. Under the Download tab, select your product from the pull-down menu to display the latest drivers available for download.

1.2 Driver Names

Table 1.1 lists the device driver files for MegaRAID controllers. The driver files are available on the *Universal Driver Suite* CD that accompanied your MegaRAID controller. LSI updates the MegaRAID device drivers frequently. To ensure you have the current version of this driver, download the driver from the LSI web site: <http://www.lsi.com>. See the *readme* file that accompanies the driver for any updated information.

To make the driver diskette, extract the files from the *Universal Driver Suite* CD to a blank floppy diskette, or download the driver files from the LSI website and extract them to an empty floppy diskette. Label the diskette as the MegaRAID driver diskette for the given operating system.

Table 1.1 MegaRAID Device Driver Files

Operating System	Device Driver Filenames	Installation Reference
Windows 2000	megasas.cat, megasas.sys, NODEV.INF, OEMSETUP.INF, TXTSETUP.OEM	Chapter 2
Windows XP	megasas.cat, megasas.sys, NODEV.INF, OEMSETUP.INF, TXTSETUP.OEM	
Windows XP x64	megasas.cat, megasas.sys, NODEV.INF, OEMSETUP.INF, TXTSETUP.OEM	
Windows Server 2003 (x86)	msas2k3.cat, msas2k3.sys, NODEV.INF, OEMSETUP.INF, TXTSETUP.OEM	
Windows Server 2003 (x64)	msas2k3.cat, msas2k3.sys, NODEV.INF, OEMSETUP.INF, TXTSETUP.OEM	
Windows Vista (x64 and x86)	megasas.cat, megasas.sys, NODEV.INF, OEMSETUP.INF, TXTSETUP.OEM	
Novell NetWare	mega_sas.ddi, mega_sas.ham	Chapter 3
Red Hat Linux 3	megaraid_sas.o	Chapter 4
Red Hat Linux 4	megaraid_sas.ko	
Red Hat Linux 5	megaraid_sas.ko	
SuSE Linux Enterprise Server 9	megaraid_sas.ko	Chapter 5

Table 1.1 MegaRAID Device Driver Files (Cont.)

Operating System	Device Driver Filenames	Installation Reference
SuSE Linux Enterprise Server 10	megaraid_sas.ko	
SCO OpenServer, SCO UnixWare	driver.o	
FreeBSD	mfi.ko, Makefile, build.sh, mfi.c, mfireg.h, mfivar.h, mfi_cam.c, mfi_debug.c, mfi_disk.c, mfi_ioctl.h, mfi_linux.c, mfi_pci.c	Chapter 7
Solaris 10	mega_sas (32-bit), mega_sas (64-bit), mega_sas.conf	Chapter 8

Chapter 2

Windows Driver Installation

This chapter describes the installation of the following Windows® operating systems:

- Windows 2000
- Windows XP
- Windows XP x64
- Windows Server 2003 (x86)
- Windows Server 2003 (x64)
- Windows Vista

This chapter consists of the following sections:

- [Section 2.1, “Installing the Windows System Driver in a New Windows System”](#)
- [Section 2.2, “Installing or Updating the MegaRAID Driver in an Existing Windows System”](#)

Note: When you connect an Engenio® Shea JBOD to a SAS RAID controller and boot up the system to a Windows operating system, a message displays asking for a driver for the Shea JBOD. You need to install the SES processor in the Shea JBOD by pointing to the same location where the MegaRAID® driver package is located, the file `Nodev.inf`. The `Nodev.inf` file (in the driver package) has the entries required to install the processor correctly. This file supports the following enclosure IDs:
EnclosureLSILOGIC____SYM3600-SAS and
EnclosureIBM-ESXSEXP3000_____.

2.1 Installing the Windows System Driver in a New Windows System

Perform the following steps to install the MegaRAID device driver in a new Windows operating system. The Windows operating system automatically adds the driver to the registry and copies the driver to the appropriate directory.

- Step 1. Start the Windows installation by booting from the appropriate Windows CD-ROM.

The system BIOS must support booting from a CD-ROM. BIOS settings might require changes to allow CD-ROM booting. See your system documentation.

- Step 2. Press F6 when the following displays at the bottom of the screen, unless you are installing Windows Vista:

`"Press F6 if you need..."`

Note: For the system to recognize the new driver for Windows 2000, Windows XP, and Windows Server 2003, you must press F6. If you are installing Windows Vista, you do not need to press F6. For Windows Vista, after the first installation screen, an option displays to allow you to load the driver from either a floppy diskette or a USB key. Otherwise, it will load the default driver from the DVD.

- Step 3. Select "S" to specify an additional device when the screen displays:

`"Setup could not determine the type of one or more mass storage devices..."`

The system prompts for the manufacturer-supplied hardware support disk.

Note: If the screen does not display this message after you press F6, then the setup program did not recognize the F6 command. Reboot the system, and return to [step 2](#).

- Step 4. Insert the driver diskette containing the Windows device driver and press ENTER.

- Step 5. Select the appropriate MegaRAID adapter from the menu by using the arrow key to highlight it, and then press ENTER to proceed.
- Step 6. Press ENTER again to proceed.
- Step 7. Return to the Windows Setup screen.
Windows displays a "Welcome to Setup" window.
- Step 8. Press ENTER to continue.
- Step 9. Press C to continue the Microsoft Windows installation procedure.
- Step 10. Follow the Windows installation procedure.
- Step 11. Repeat this process for all the adapters on your system.

2.2 Installing or Updating the MegaRAID Driver in an Existing Windows System

Perform the following steps to install or update the MegaRAID device driver in an existing Windows system:

- Step 1. Boot the Windows operating system.
The Found New Hardware Wizard starts.
- Step 2. Click the Next button and insert the driver diskette into the A:\ drive.
- Step 3. Click the Search for a Suitable Driver... button, and click Next.
- Step 4. Click the Next button.
In some cases, a message displays saying that this driver is not digitally signed. This message informs you that a nonsigned driver is being installed. If this message displays, click Continue Anyway.
- Step 5. Select Floppy only, and then click the Next button in the Driver Files Search Results window.
- Step 6. Click the Finish button to complete the driver installation, and then repeat this process for all the adapters on your system.

Chapter 3

Novell NetWare Driver Installation

This chapter provides installation instructions for the MegaRAID® Novell® NetWare® driver and consists of the following sections:

- [Section 3.1, “Novell NetWare Driver Files”](#)
- [Section 3.2, “Installing the NetWare Driver in a New NetWare System”](#)
- [Section 3.3, “Installing or Updating the NetWare Driver in an Existing NetWare System”](#)

3.1 Novell NetWare Driver Files

The MegaRAID Novell NetWare driver and utilities support logical drives configured on the MegaRAID controller. This driver supports up to 12 MegaRAID controllers.

Important: The logical drives configured on the host adapter are registered with the operating system as separate logical units.

[Table 3.1](#) describes the MegaRAID Novell NetWare driver files.

Table 3.1 MegaRAID Novell NetWare Driver Files

Filename	Description
mega_sas.ham	This file is the MegaRAID host adapter module (HAM). This driver supports the NPA Diagnostics option by using the NWDIAG flag, which is specified on the command line when the driver loads. The driver is a re-entrant module. It registers one adapter when you issue the Novell NetWare <code>LOAD</code> command to load the driver.
mega_sas.ddi	This file is the device driver installation file. It is needed to install the MegaRAID HAM driver.

All utilities and ASPI drivers expect the MegaRAID driver to pass the requests to the adapter.

3.2 Installing the NetWare Driver in a New NetWare System

Follow the instructions in the *Novell NetWare Installation Guide* to install Novell NetWare in the server. Perform the following steps to install Novell NetWare using the MegaRAID controller as a primary adapter:

- Step 1. Boot from Novell NetWare.
- Step 2. Follow the instructions on the screen until you reach the Device Driver screen, which is used to modify drivers.
- Step 3. Select Modify, and press ENTER.
- Step 4. Select Storage Adapters on the Storage Driver Support screen, and press ENTER.
- Step 5. Delete any existing MegaRAID adapter listings.
- Step 6. Press INSERT to add unlisted drivers.
- Step 7. Press INSERT again.
A path displays.
- Step 8. Press F3.
- Step 9. Insert the driver diskette into the floppy drive, and press ENTER.
The system finds the .HAM driver.
- Step 10. Press TAB.
- Step 11. Select the Driver Summary screen, and press ENTER.
- Step 12. Continue the Novell NetWare installation procedure.

3.3 Installing or Updating the NetWare Driver in an Existing NetWare System

Perform the following steps to add the Novell NetWare driver to an existing installation:

Step 1. Type at the root prompt:

nwconfig

and press ENTER.

The Configuration Options screen displays.

Step 2. Select Drive Options, and press ENTER.

A window displays.

Step 3. Select Configure Disk and Storage Device Options, and press ENTER.

Step 4. Select one of the following options displayed in the window:

- Discover and Load an Additional Driver

If you select Discover and Load an Additional Driver, the system discovers the extra unit. The system prompts you to select a driver from the list. Press INSERT to insert the driver. This completes the procedure.

- Select an Additional Driver

If you select Select an Additional Driver, the Select a Driver screen displays. Press INSERT. Follow the instructions that appear.

Insert a floppy diskette into the floppy drive, and press ENTER.

The system finds the driver and installs it.

Chapter 4

Red Hat Linux 3.0, 4.0, and 5.0 Driver Installation

This chapter describes the installation of the device driver in new Red Hat[®] Linux[™] 3.0, 4.0, and 5.0 systems, and the update to the Red Hat Linux driver on an existing Red Hat Linux system. It consists of the following sections:

- [Section 4.1, “Installing the Driver in a New Red Hat Linux System”](#)
- [Section 4.2, “Adding the Red Hat Linux 4.0 or 5.0 Driver to an Existing Installation”](#)
- [Section 4.3, “Updating the Red Hat Linux System Driver”](#)

Refer to the release notes that accompanied the driver for information on an existing Red Hat Linux system.

4.1 Installing the Driver in a New Red Hat Linux System

You can install the driver in a new Red Hat Linux 5 system from the Red Hat Linux installation CD. In addition, you can install the driver in a new Red Hat Linux 3.0, 4.0, or 5.0 system from a driver update diskette.

4.1.1 Installing from CD

To install the MegaSAS device driver in a new Red Hat Linux 5.0 system from the Red Hat Linux installation CD, perform the following steps:

Step 1. Insert the Red Hat Linux installation CD in the CD drive.

Step 2. Follow the installation procedure for Red Hat Linux 5.0.

4.1.2 Installing from a Driver Update Diskette

To install the MegaRAID[®] device driver in a new Red Hat Linux 3.0, 4.0, or 5.0 system from a driver update diskette, create the diskette using the

Linux driver image on the Red Hat Linux installation CD. Perform the following steps:

Step 1. Boot to CD-ROM with Disk 1.

Step 2. Type:

```
linux dd
```

Step 3. Insert the driver diskette.

The utility locates and loads the driver for your device.

Step 4. Press ALT+CTRL+F4 to verify the driver is loaded.

Step 5. Follow the Red Hat Linux installation procedure to complete the installation.

4.2 Adding the Red Hat Linux 4.0 or 5.0 Driver to an Existing Installation

Perform the following steps to add the Red Hat Linux 4.0 or 5.0 driver to an existing installation:

Step 1. Turn on the power to the system.

The system initializes the hardware. The then system detects the controller and invokes Kudzu, the Red Hat Linux hardware configuration utility.

The following RAID controller is added to your system:

```
LSI Logic / Symbios Logic MegaSAS
```

Step 2. Select one of the following options:

- Configure the device.
- Ignore the device. No configuration will be added, but you will not be prompted if the device is detected on subsequent reboots.
- Do nothing. No configuration will be added, and the device will show up as new if it is detected on subsequent reboots.

Step 3. Highlight the Configure tab, and press ENTER.

The system configures the controller and installs the appropriate driver in the kernel.

- Step 4. The system boots and displays the devices connected or configured on the controller.

4.3 Updating the Red Hat Linux System Driver

Perform the following procedure to update to the latest version of the driver:

- Step 1. Boot the system.
- Step 2. Go to Console (your terminal GUI).
- Step 3. Run Dynamic Kernel Module Support (DKMS) and follow the update instructions on the screen.

Note: You might need to be download the DKMS package online.

- Step 4. Run RPM (package manager) and follow the on-screen instructions.

Chapter 5

SUSE Linux Enterprise Server (SLES) 9.0 and 10.0 Driver Installation

This chapter describes how to install the SUSE® Linux™ Enterprise Server (SLES) 9.0 and the SUSE SLES 10.0 driver in the RAID-configured drives. It consists of the following sections:

- [Section 5.1, “Installing the Driver in a New SuSE SLES Linux System”](#)
 - [Section 5.2, “Updating the SuSE SLES 9.0 or 10.0 Driver”](#)
-

5.1 Installing the Driver in a New SuSE SLES Linux System

Note: If you use Service Pack (SP) 1 or SP 2, you need to load the driver. If you use SP 3 RC 2, the MegaSAS driver is already on the SuSE SLES Linux CD.

You can install the MegaRAID® device driver in a new SuSE SLES Linux 10.0 system from the SuSE SLES Linux CD. In addition, you can install the MegaRAID device driver in a new SuSE SLES Linux 9.0 or 10.0 system from a floppy diskette.

5.1.1 Installing from CD

To install the driver in a new SuSE SLES Linux 10.0 system from the SLES Linux installation CD, perform the following steps:

Step 1. Boot the server with the SLES SP CD-ROM Disk 1.

The system BIOS must support booting from a CD-ROM. BIOS settings might require changes to allow CD-ROM booting. See your system documentation.

Step 2. At the installation message, press ENTER.

The driver is installed from the CD.

5.1.2 Installing from a Driver Update Diskette

To install the driver in a new SuSE SLES Linux 9.0 or 10.0 system from a driver update diskette, perform the following steps:

Step 1. Boot the server with the SLES SP CD-ROM Disk 1.

The system BIOS must support booting from a CD-ROM. BIOS settings might require changes to allow CD-ROM booting. See your system documentation.

Step 2. At the installation message, do one of the following:

- a. Press F6 for SLES 9.0.
- b. Press F5 for SLES 10.0.

Step 3. Select `Installation` and press ENTER.

Note: Follow screen instructions to switch between operating system CDs and operating system CD service packs.

Step 4. Put the driver update diskette in the drive bay, and install normally.

The installation process will pick up the new driver from the floppy diskette.

Step 5. Press ALT+CTRL+F4 to see whether the driver is loaded.

5.2 Updating the SuSE SLES 9.0 or 10.0 Driver

Perform the following procedure to update to the latest version of the SuSE SLES 9.0 or 10.0 driver:

Step 1. Boot the system.

Step 2. Go to Console (your terminal GUI).

Step 3. Run Dynamic Kernel Module Support (DKMS) and follow the update instructions on the screen.

Note: You may need to be download the DKMS package online.

Step 4. Run RPM (package manager) and follow the update instructions on the screen.

Chapter 6

SCO OpenServer 6 and SCO UnixWare 7 Driver Installation

This chapter describes the installation of the SCO® OpenServer™ 6 driver and the SCO UnixWare® 7 driver, and consists of the following sections:

- [Section 6.1, “Installing the Driver in a New SCO OpenServer 6 or SCO UnixWare 7 System”](#)
 - [Section 6.2, “Upgrading the Driver on an Existing OpenServer 6 or UnixWare 7 System”](#)
-

6.1 Installing the Driver in a New SCO OpenServer 6 or SCO UnixWare 7 System

When you install the SCO OpenServer 6 operating system or the SCO UnixWare 7 operating system, insert the megasas Driver Supplement media before you insert any HBA drivers supplied with your media kit.

Use the following steps on a SCO OpenServer 6 system or a SCO UnixWare 7 system to create an HBA driver diskette from the HBA diskette image file.

- Step 1. Go to the root directory, and create a new directory by typing the following command:

```
$ su
Password: <type your root password>
# mkdir /tmp/hba
# cd /tmp/hba
```

- Step 2. Download the `hba.megasas.1.0.image` file to the newly created `/tmp/hba` directory on your system.

Step 3. Make a megasas HBA diskette from the image file by typing the following command:

```
# dd if=hba.megasas.1.0.image of=/dev/dsk/f0t  
obs=36b
```

Step 4. Use the megasas HBA diskette during system installation.

Use the following steps on a SCO OpenServer 6 system or a SCO UnixWare 7 system to create an HBA CD from the HBA ISO image file.

Step 1. Go to the root directory and create a new directory by typing the following command:

```
$ su  
  
Password: <type your root password>  
  
# mkdir /tmp/hba  
  
# cd /tmp/hba
```

Step 2. Download the `hba.megasas.1.0.iso` file to the newly created `/tmp/hba` directory on your machine.

Step 3. Make a megasas HBA CD from the ISO file by using this command:

```
# cdrecord -v -dev=c,b,t -dao -driveropts=burnfree -  
speed=99 hba.megasas.1.0.iso
```

where `c,b,t` is taken from the output of `cdrecord --scanbus`.

Step 4. Use the megasas HBA CD during system installation.

6.2 Upgrading the Driver on an Existing OpenServer 6 or UnixWare 7 System

The following procedure updates the megasas device driver in an existing SCO OpenServer or SCO UnixWare system. You can use the megasas HBA diskette to upgrade the megasas driver on your system by using the following step.

Step 1. Insert the HBA driver diskette, and type the following command:

```
# pkgadd -d diskette1 all  
  
or
```

```
# pkgadd -d diskette1 megasas
```

You can use the megasas HBA CD to upgrade the megasas driver on your system using the following step.

Step 1. Insert the HBA driver CD, and type the following command:

```
# pkgadd -d cdrom1 all
```

or

```
# pkgadd -d cdrom1 megasas
```


Chapter 7

FreeBSD Driver Installation

This chapter describes the installation of the FreeBSD® driver and consists of the following section:

- [Section 7.1, “Upgrading the Driver on an Existing FreeBSD System”](#)

7.1 Upgrading the Driver on an Existing FreeBSD System

When the FreeBSD operating system is already installed, the kernel image has to be updated on the new driver module. Perform the following steps to install the FreeBSD driver.

- Step 1. Make sure that the kernel source has been installed on the system. If the kernel source has been installed, the `/usr/src/sys` directory exists.
- Step 2. Move to the `arch/conf` directory and copy the GENERIC configuration file to a new file. The new file will be the kernel configuration file. Here is an example:
- ```
cd /usr/src/sys/i386/conf
cp GENERIC MYKERNEL
```
- Step 3. Copy the zip file (`mfi.zip`) under the path `/usr/src/sys/dev`. Before you proceed to the next step, make sure that the directory with name “mfi” does not exist under the path `/usr/src/sys/dev/`. If a directory with the name “mfi” already exists, move it to a different folder. For example, type the following command: `mv /usr/src/sys/dev/mfi /root/mfibackup`.
- Step 4. Go to the directory `/usr/src/sys/dev` and run the following command to unzip the source:
- ```
tar -x -f mfi.zip
```

Step 5. To compile the kernel, go to the `/usr/src` directory and type the following command:

```
make buildkernel KERNCONF=MYKERNEL
```

Step 6. To install the new kernel, type the following command:

```
make installkernel KERNCONF=MYKERNEL
```

The new kernel is copied to the `/boot/kernel` directory as `/boot/kernel/kernel` and the old kernel is moved to `/boot/kernel.old/kernel`.

Step 7. Reboot the system to use the new kernel, which has the latest driver.

Chapter 8

Solaris 10 x86 and Solaris Express x86 Driver Installation

This chapter explains how to install the Solaris® 10 x86 driver and the Solaris® Express x86 driver in RAID-configured drives in a new Solaris 10 x86 system or a new Solaris Express x86 system. This chapter also explains how to upgrade the driver where the Solaris operating system has been already installed. You can proceed with the installation of the operating system and later follow the steps to upgrade the driver.

This chapter consists of the following sections:

- [Section 8.1, “Installing the Driver in a New Solaris 10 x86 or Solaris Express x86 System”](#)
- [Section 8.2, “Updating the Driver on Solaris 10 x86 or Solaris Express x86 Operating System”](#)

8.1 Installing the Driver in a New Solaris 10 x86 or Solaris Express x86 System

If you use Solaris 10 Update 6 or later, the MegaRAID SAS driver is part of the operating system installation DVD/CD.

Note: If you use Solaris 10 Update 5 or earlier, you need the driver update.

8.1.1 Installing the Driver Update (Install-Time-Update) from a CD or a Diskette

To install the operating system from the Solaris 10 or Solaris Express installation CD on a drive attached to the MegaRAID SAS controller, in a new Solaris system, perform the following steps.

Step 1. Create a driver image CD from the .iso image file provided.

- Step 2. Boot the server with the Solaris DVD/CD.
- Step 3. Select the `Solaris` installation at grub boot menu.
- After the message `Configuring devices` appears on the screen, a menu appears for you to continue the installation process.
- Step 4. Select the option `Apply Driver Updates` from the menu.
- This prompts the next menu.
- Step 5. On the menu, select the device (CD, floppy, or USB device) from which to update the driver.
- Step 6. As the driver update is on CD/DVD, eject the Solaris installation DVD and insert the driver update CD/DVD created in [step 1](#).
- Step 7. Select the option `Driver installation from CD/DVD` to apply the driver update.
- This updates the driver.
- Step 8. After the driver is updated, press `E` on the keyboard and re-insert the Solaris operating system installation CD/DVD to continue installing the Solaris operating system.

8.1.2 Installing the Driver Update (Install-Time-Update) from Floppy Diskette

To install the driver on a drive attached to a MegaRAID SAS controller, in a new Solaris system from Solaris 10 or Solaris Express installation CD, perform the following steps.

- Step 1. Create a floppy driver image from the `.img` image file provided.
- Step 2. Boot the server with the Solaris DVD/CD.
- Step 3. Select the `Solaris` installation at grub boot menu.
- After you pass the message `Configuring devices`, a menu appears for you to continue the installation process.
- Step 4. Choose the option `Apply Driver Updates` from the menu.
- The `Apply Driver` option updates the menu and prompts the next menu where you can select the device (CD, floppy, USB device) from which the driver can be updated.

- Step 5. As the driver update is on a floppy created in [step 1](#), choose the option installation from floppy to apply the driver update.
- This updates the driver.
- Step 6. After the driver is updated, press **E** and continue the Solaris operating system installation.

8.2 Updating the Driver on Solaris 10 x86 or Solaris Express x86 Operating System

A package has been provided to update or install the driver on systems where the Solaris operating system has been already installed. You have to use the `pkgadd` operating system utility to add the package and the `pkgrm` operating system utility to remove the package.

Note: Reboot the system after patch installation.

Note: Before you install this patch, un-install the previously installed driver. The previous driver was installed either through the package (megasas, MEGasas, or SUNWmegasas) or install scripts (`install.sh` or `install32.sh`).

Note: A `readme` file is provided along with each package which you can refer to install or uninstall the package. In addition, you can refer to the operating system documentation to obtain more information about the `pkgadd` and `pkgrm` operating system utilities.

Index

D

device driver files [1-3](#)

driver

- diskette [1-3](#)

- filenames [1-3](#)

driver installation

- NetWare [3-2](#)

- Novell NetWare [3-1](#)

- Red Hat Linux [4-1](#)

- SCO [6-1](#), [7-1](#)

- Solaris [8-1](#)

- SuSE Linux Enterprise Server (SLES) 9,
10 driver [5-1](#)

drivers

- supported operating systems [1-1](#)

F

filenames [1-3](#)

FreeBSD

- driver filenames [1-4](#)

FreeBSD operating system

- versions [1-1](#)

L

LSI web site [1-3](#)

N

NetWare driver installation [3-2](#)

Novell NetWare

- driver filenames [1-3](#)

- driver files [3-1](#)

- number of supported drives [3-1](#)

Novell NetWare operating system

- driver installation [3-1](#)

- versions [1-1](#)

NPA Diagnostics [3-1](#)

O

operating system support [1-1](#)

P

PCI local bus [1-1](#), [1-2](#)

R

Red Hat Linux 3

- driver filenames [1-3](#)

Red Hat Linux 4

- driver filenames [1-3](#)

Red Hat Linux 5

- driver filenames [1-3](#)

Red Hat Linux operating system

- driver installation [4-1](#)

- versions [1-1](#)

RSA [1-2](#)

S

SCO

- driver filenames [1-4](#)

SCO installation [6-1](#), [7-1](#)

SCO OpenServer driver

- installation [6-1](#)

SCO OpenServer operating system [1-1](#)

SCO UnixWare operating system [1-1](#)

SLES installation [5-1](#)

SLES Linux 9, 10 [5-1](#)

Solaris

- driver filenames [1-4](#)

- Solaris driver update [8-3](#)
- Solaris installation [8-1](#)
- SuSE Linux Enterprise Server 10
 - driver filenames [1-4](#)
- SuSE Linux Enterprise Server 9
 - driver filenames [1-4](#)
- SuSE SLES operating system
 - versions [1-1](#)

W

- web site [1-3](#)
- Windows 2000
 - driver filenames [1-3](#)
- Windows operating system
 - versions [1-1](#)
- Windows Server 2003
 - driver filenames [1-3](#)
- Windows XP
 - driver filenames [1-3](#)
- Windows XP Driver
 - Installation on an Existing System [3-3](#)

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